

REMARKS

Applicant concurrently files herewith a petition and fee for a three-month extension of time.

An excess claim fee payment letter is submitted herewith for one (1) additional excess independent claim and one (1) additional total claim.

Claims 1-25 are presently pending in this application. Claims 1, 2, 17, 18, 19, and 24 have been amended to more particularly define the invention. Claim 25 has been added.

Claims 1, 2, 5-15 and 24 were rejected under 35 U.S.C. §102(b) as anticipated by Fujisawa et al., U.S. Patent No. 5,467,277. Claims 16-19 and 22-23 were rejected under 35 U.S.C. §103(a) as being unpatentable over Fujisawa et al., in view of Matsuo, U.S. Patent No. 6,442,461. Claims 3, 4, 20, and 21 were rejected under 35 U.S.C. §103(a) as being unpatentable over Fujisawa et al., in view of Patton, United States Patent No. 5,889,629. These rejections are traversed.

THE CLAIMED INVENTION

The claimed invention is directed to a disk drive device that is driven by a power supply voltage in a vehicle. In accordance with the claimed invention, the disk drive device is driven only after engine start has been detected -- i.e., the disk drive device is not driven until the vehicle engine has been started.

As a consequence, the disk drive device does not experience a voltage drop immediately following start of driving of the disk drive device, as might be experienced if the disk drive is driven before or concurrently with engine start. Therefore, the disk drive device

does not go through an emergency unloading operation, as happens with many prior art disk drive devices.

THE PRIOR ART REFERENCES

The Fujisawa, et al. Reference

Fujisawa, et al. discloses an apparatus and method for automobile control which includes a disk unit. Figure 5 of Fujisawa, et al. is a flow chart of the entire vehicle operation. Figure 5 shows that upon turn on of the key switch (step 502) or operation of the card unit (step 504) or command of a change of the system (step 506), it is determined whether the disk unit is normal (step 510). If so, it is determined whether start up of the engine is to be made by a system stored in the disk (step 516). If so, then the system stored in the disk is used for start up. See Fujisawa, et al. at column 6, line 67 to column 7, line 6.

The Matsuo Reference

Matsuo, United States Patent No. 6,442,461, is assigned to Pioneer Corporation, of Tokyo, Japan. The present application is likewise assigned to Pioneer Corporation. Both the present application and the Matsuo reference were, at the time the invention was made, owned by, or subject to an obligation of assignment to, Pioneer Corporation. Consequently, the Matsuo reference does not provide a proper basis for rejecting the claims of the present application. See MPEP §706.02(l)(2).

The Patton Reference

Patton discloses a method and apparatus for controlling disk drive head parking during a power interruption using the back emf generated by the still-spinning motor.

ARGUMENT

The rejection of claims 16-19 and 22-23 relies in part of Matsuo, United States Patent No. 6,442,461. Since the present application and the Matsuo reference were, at the time the invention was made, owned by, or subject to an obligation of assignment to, Pioneer Corporation, the Matsuo reference does not provide a proper basis for rejecting the claims of the present application. See MPEP §706.02(l)(2). Accordingly, claims 16-19 and 22-23 are allowable.

Claims 20 and 21 depend from claim 18, and thus from claim 16. Consequently, claims 20 and 21 are likewise allowable.

Each of independent claims 1, 2, and 24 brings out that the disk drive device is not driven unless the engine has been started. As set forth above, this avoids emergency unloading of the disk drive. Consequently, the likelihood of damage to the disk drive is significantly reduced.

Fujisawa, et al. commence operation of the disk drive when the key is turned on or the card inserted in the card unit. See Fujisawa, et al. at Figure 5 and column 6, line 38 to column 7, line 6. The disk drive determines the manner in which the engine is started. Engine start will significantly reduce the power to the disk drive, making emergency unloading a significant possibility.

The Office Action contends that Fujisawa, et al. "discloses a black box/diagnosis (disk drive) that senses (or detects) the conditions (or environment) of the car (or vehicle) and the ignition start key switch which actives [sic] the disk drive or diagnosis or the detecting operations" and cites the Abstract of Fujisawa, et al. This contention is traversed.

As depicted in timing diagrams of the present application (e.g., Figures 4, 7, 9), when the key switch is in the engine start position (interval III-IV) electric power is supplied to the engine due to the start key, and so there is a drop in voltage to accessories. In the present invention, the disk drive apparatus is activated only after the engine start detecting part has detected start of the engine when the accessory voltage has returned to its normal value. Thus, a time gap exists between the instant (III) when the electric power is supplied to the engine through the start key and the instant (IV) when the engine actually starts.

Since an instantaneous drop of the power voltage occurs during this time gap, the present invention activates the disk drive only after the engine start detecting part has detected start of the engine.

This avoids emergency unloading of the disk drive and significantly reduces the likelihood of damage to the disk drive. This is neither shown nor suggested by Fujisawa, et al.

Clearly, Fujisawa, et al. does not disclose or make obvious the claimed invention.

Patton does not provide that which distinguishes the claimed invention from Fujisawa, et al.

New independent claim 25 is patterned after allowable claims 16-19 and is likewise allowable.

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It is accordingly submitted that independent claims 1, 2, 24, and 25 distinguish patentably from the references and are allowable, as do dependent claims 3-23.

CONCLUSION

In view of the foregoing, Applicant submits that claims 1-25, all the claims presently pending in the application, are patentably distinct over the prior art of record and are allowable, and that the application is in condition for allowance. Such action would be appreciated.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned attorney at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

To the extent necessary, Applicant petitions for an extension of time under 37 C.F.R. §1.136. The Commissioner is hereby authorized to charge any deficiency in fees, including extension of time fees, or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

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